Index

Volume 35 Nos 1–12
January–December 1993

Items in italic are keywords taken from extracts of papers.

SUBJECT INDEX

A flexible framework for contingent information systems modelling 530
A graphical process definition language and its application to a maintenance project 364
A model of the data (life) cycles with application to quality 217
A new metric for object-oriented design 232
A predicative basis for structured analysis specification tools 67
A reverse engineering process for design level document production from ADA code 23
A rule-based approach to computerized map reading 587
A rule-based process representation technique for software process evaluation 603
abstract data types 67, 619
ADA code 23
Addressing requirements when using the MOON design method 513
Analytical verification of information system requirements using Petri net properties 89
An application of the calculus of communicating systems to the prime factorization problem 474
An enactable software process modelling approach 573
An object-oriented geographic information system shell 561
Applying software reliability models to a large industrial dataset 669

behavioural model 573
BOOTSTRAP 387

capability maturity model 381
CASE 323, 331
CASE technology adaptation 312
Case technology adaptation and managerial maturity 312
CASE tools 101
CCS 474
change management tools 35
change statistics 35
checkpointing 479
collaborative editing 639
Combining knowledge-based and database technology in a tool for business planning 131
Combining many-sorted logic and object-oriented programming 241
communicating finite state machine 479
communication protocol 479
Communication support for protoyping projects 647
complex information systems 530
complex objects 54
component-class hierarchy 54
component-type hierarchy 54
computer-aided instruction 120
Computer-aided methodology engineering 345
computer-aided methodology engineering 345
concurrency control 139
conformance testing 603
contract view 573
co-operation 17
Creating a software process improvement program 381
Current practices in software processes for system planning and requirements analysis 339

Data abstraction in Modula-2 619
data flow diagrams 3, 67, 499
Data flow model for the implementation of real-time programs on simple target machines 3
data life-cycle 217
data modelling 449
data quality 217
database 561
database programming 301
database requirements 149
Database requirements for a software engineering environment: criteria and empirical evaluation 149
database systems 78, 519
Deriving relevant functional measures for automated development projects 499
design level documents 23
development automation 499
development life-cycle 355
development metrics 427
development process 375
development time and cost 427
diagram editors 101
distributed concurrent processes 573
distributed database systems 139
distributed multimedia 259
distributed query processing 287
domain knowledge 45
Dynamic checkpointing procedure for the design of stabilizing protocols 479

editor transfer chart 101
education 115
enactable software process 573
engineering disciplines 355
entity relationship models 499
ESPRIT 111
European Software Industry 387
executable software process 573
experience report 665
expert database 131
explicit models 407

factorization 474
failure datasets 665
feature extraction 587
feedback planning models 427
formal methods 675
formal model 687
Formal process modelling 659
formal specification 675
Formal specification of a persistent object management system 277
formal specifications 67
Formal specifications in software maintenance: from code to Z++ and back again 679
formal techniques 277
framework 530
functional assessment 499
functional decomposition 499
functional languages 554

geographic information systems 587
GIS 561
graphical process modelling 364
group cohesiveness 468
groupware 639

harmonizing best practices 108
heterogeneous 439
high-level modelling 427
historical databases 171
human factors 647
hypertext 120

implementation 3
improvement-oriented engineering model 407
index terms 54
information systems development 345, 491
information systems modelling 530
Integrating an enterprise's engineering processes 355
Integrating diagrams in CASE tools through modelling transparency 101
integrating engineering practices 355
interaction 653
internal attributes 554
international standards 404
Introduction to METKIT 108

Index

join query processing algorithms 287

knowledge bases 45

life-cycle view 573
Locating patient data among multiple heterogeneous medical databases 439

main memory database (MMDB) 225
management 387
managerial maturity 312
Managing synchronization and time factors in multimedia presentation 653
mathematics in software design 277
maturity assessment 387
measurement 375, 407
Measurement-based guidance of software projects using explicit project plans 407
Mechanisms for managing partial reload in a high performance memory-resident database system 225
merged methods 513
message expression 519
meta-development modelling 530
meta-models 101
methodology engineering 530
metrics 323
modelling techniques 530
Modelling the software process in terms of the system representations and transformation steps used 181
modelling transparency 101
Modula-2 619
modular object oriented notation 513
multilevel data distribution 287
multimedia data 653
multiple medical database 439
mutation 163
Mutation testing—its origin and evolution 163

networking 639
normal form 267

object access control 259
object algebra 519
object code 627
Object invocation and management in the Zenith distributed multimedia information system 259
object management 277
object management systems 17, 259
object migration 259
object persistence 259
Object systems over relational databases 449
object-oriented 449, 561
object-oriented data model 267
object-oriented databases 54, 149, 301
object-oriented database systems 207, 277, 519
object-oriented design 195, 232
Object-oriented design: guidelines and techniques 195
object-oriented methodology 195
object-oriented paradigm 78
Object-oriented query language facilitating construction of new objects 519
object-oriented techniques 675
object-oriented technology 462
obsolescence 462
On using Prolog to implement object-oriented databases 301
Operations and queries in object-oriented databases supporting complex objects 54
operations on component-class hierarchy 54
order fulfilment process 687

page replacement 225
participation 491
patient data 439
performance evaluation 139
persistent code 627
Petri net notion 603
Petri nets 89
PIMS analysis 131
predicate logic 513
primes 474
process analysis 375
process assessment 387, 381, 404
Process assessment: the 'BOOTSTRAP' approach 387
process control 659
process entropy 375
process management 404
process modelling 331, 375, 387, 603, 687
process models 603
product measures 375
product-quality based development 427
programming languages 78
Programming versus databases in the object-oriented paradigm 78
project guidance 407
project management 345, 427, 647
project modelling 407
project scenario 530
Prolog 301
protocol design 470
protocol stabilization 479
prototyping 339, 647

QMS 375
quality assurance 120
quality function deployment 491
Quality function deployment: a tool to improve software quality 491
quality programs 462
Quantifying internal attributes of functional programs 554
quantifying quality 554
Quantifying schema evolution 35
query language 519
query processing 54
queuing system 439

Realizing relational style operators and views in the Oggetto object-oriented database system 207
real-time 3
real-time conferencing 639
real-time systems 513, 659
recovery 225
re-engineering 462, 675
Re-engineering option analysis for managing software rejuvenation 462
reference count garbage collection 619
relational algebra 207
relational model 171, 449
relational operators 207
repository 45
requirements analysis 89, 339, 513
requirements definition 339
reusable components 462
reusable units 627
reverse engineering 23, 675
rigorous consistency verification 67
rollback 171
ROPCO 627
rule-based systems 587, 603

schema evolution 35
seamless system development 355
Second International Conference on applications of AI on Wall Street, New York, USA 19–22 April 1993 (Conference report) 486
semantic decomposition 67
set theory 513
Seventh Annual User Meeting (ZUM '92) (Conference report) 613
Simulation of join query processing algorithms for a trusted distributed database management system 287
software complexity 499
software crisis 387
software development 181, 468
software development group performance 468
software development groups 468
software engineering 115, 195, 232
software engineering environments 149
software engineering measurement 108, 120, 111
software evaluation 603
software experimentation 232
software maintenance 45, 364, 675
software metrics 115, 181, 232, 491
software parts 45
software process improvement 381, 404
software process maturity 331
Software process maturity (SPM) and the information systems developer 331
software process modelling 181, 323, 339
Software process modelling and measurement: a QMS case study 375
Software process modelling and metrics: a CASE study 323
Software process modellng in practice (Conference report) 317
software product development planning 427
software quality 331, 491
software re-engineering 45
Software re-engineering and reuse from a Japanese point of view 45
software rejuvenation 462
software reliability models 665
software restructuring 45
software reuse 45, 627
software reverse engineering 45
software skeletons 45
software testing 163
specification mutation 163
SPICE 404
SPICE: Software Process Improvement and Capability dEtermination 404
standards 603
strategy oriented IS management 312
structured analysis 67
synchronization 653, 659
system architecture 653
system business strategy 131
system development 647
system planning 339
system refinement 603
system specification 687
system views 603
systems software 513

Technology transfer in software engineering measurement: ESPRIT II Project METKIT (Editorial) 107
temporal databases 171
The effect of resource contention on distributed database systems 139
The METKIT Academic Package 115

Index

The METKIT CAI System 120
The METKIT Industrial Package 111
The software product feedback flow model for development planning 427
The time dimension considered appropriate for resource access synchronization 691
three-level schema architecture 267
time 659
time factor 653
Time-rollback using logs in historical databases 171
Toward resolving inadequacies in object-oriented data models 267
TQM 375
training 109, 111
transaction representation 499
trusted database management systems 287

Understanding the factors influencing the performance of software development groups: an exploratory group-level analysis 468
user interfaces 17, 499
Using PCTE with X-based user interface development tools 17

VDM 687
verification 89
version management 627
Version management for ROPCO—a micro-incremental reuse environment 627
view mechanisms 207

windowing system 17

X-based systems 639
X Window based group collaborative editing system 639

Yourdon Structured Method 603

Z notation 277, 675

AUTHOR INDEX

Abdelmoty, A I, Williams, M H and Quinn, J M P A rule-based approach to computerized map reading 587
Agarwal, A see Saleh, K
Ahmad, I see Saleh, K
Al-Saqabi, K see Saleh, K
Alhajj, R and Arkun, M E Object-oriented query language facilitating construction of new objects 519
Arkun, M E see Alhajj, R
Ashley, N Introduction to METKIT 108
Ashley, N The METKIT Industrial Package 111
Awad, M see Saiedian, H

Balasundaram, S see Bhalla, N
Baugh, P, Gillies, A and Jastrzebski Combining knowledge-based and database technology in a tool for business planning 131
Bazzana, G, Zontini, G, Damele, G, Maiocchi, M and Giunchi, M Applying software reliability models to a large industrial dataset 669
Beshers, G M see Demurjian, S A
Bhalla, N and Balasundaram, S Operations and queries in object-oriented databases *supporting complex objects* 54
Blair, G S see Davies, N
Bowen, J Seventh Annual User Meeting (ZUM '92) (Conference report) 613
Bowen, J, Breuer, P and Lano, K Formal specification in software maintenance: from code to Z^{++} and back again 679
Breuer, P see Bowen, J
Brinkkemper, S Integrating diagrams in CASE tools through modelling transparency 101
Bush, M see Russell, M

Canfora, G, Cimitile, A and De Carlini, U A reverse engineering process for design level document production from ADA code 23
Capretz, L F and Lee, P A Object-oriented design: guidelines and techniques 195
Chen, J-Y and Lu, J-F A new metric for object-oriented design 232
Chen, J-Y and Lai, C-P An enactable software process modelling approach 573
Chen, S, Drake, J M and Tsai, W T Database requirements for a software engineering environment: criteria and empirical evaluation 149
Cho, J W see Kim, B M
Christie, A M A graphical process definition language and its application to a maintenance project 364
Cimitile, A see Canfora, G
Crowe, M K Object systems over relational databases 449
Curtis, B and Paulk, M Creating a software process improvement program 381
Curran, P see Hull, M E C

Damele, G see Bazzana, G
Davies, N, Davy, M, Blair, G S and Mariani, J A Object invocation and management in the Zenith distributed multimedia information system 259
Davy, M see Davies, N
De Carlini, U see Canfora, G
Demurjian, S A, Beshers, G M and Ting, T C Programming versus databases in the object-oriented paradigm 78
Dorling, A SPICE: Software Process Improvement and Capability dEtermination 404
Drake, J M see Chen, S
Dyer, M, Kraly, T, Luppino, F and Waldron, R Integrating an enterprise's engineering processes 355

Embury, S M see Paton, N W
Erikkson, I and McFadden, F Quality function deployment: a tool to improve software quality 491

France, R B A predicative basis for structured analysis specification tools 67

Gahegan, M N see Roberts, S A
Gillies, A Second International Conference on applications of AI on Wall Street, New York, USA 19–22 April 1993 (Conference report) 486
Gillies, A see Baugh, P
Giunchi, M see Bazzana, G
Glaser, H and Harrison, R Data abstraction in Modula-2 619
Gray, P M D see Paton, N W
Grimson, J see Murphy, J
Gruenwald, L Mechanisms for managing partial reload in a high performance memory-resident database system 225

Halang, W A and Krämer, B The time dimension considered appropriate for resource access synchronization 691
Harrison, R Quantifying internal attributes of functional programs 554
Harrison, R see Glaser, H
Heath, D J An application of the calculus of communicating systems to the prime factorization problem 474
Henderson, W D see Robson, A P
Heym, M and Österle, H Computer-aided methodology engineering 345
Higham, R see Pengelly, A
Hu, J and Williams, M H Locating patient data among multiple heterogeneous medical databases 439
Hull, M E C, O'Donoghue, P G and Curran, P Addressing requirements when using the MOON design method 513
Hung, S see Lam, K

Jastrzebski, P see Baugh, P

Kautz, K Communication support for prototyping projects 647
Kim, B M, Ryu, K Y, Maeng, S R and Cho, J W Combining many-sorted logic and object-oriented programming 241
Koch, G R Process assessment: the 'BOOTSTRAP' approach 387
Kraly, T see Dyer, M
Krämer, B see Halang, W A

Lai, C-P see Chen, J-Y
Lakhanpal, B Understanding the factors influencing the performance of software development groups: an exploratory group-level analysis 468
Lam, K and Hung, S The effect of resource contention on distributed database systems 139
Lano, K see Bowen, K
Lee, P A see Capretz, L F
Leishman, S see Paton, N W
Leu, W-Y and Yuan, S-M X Window based group collaborative editing system 639
Levitin, A V and Redman, T C A model of the data (life) cycles with application to quality 217
Lin, F Re-engineering option analysis for managing software rejuvenation 462
Ling, T W and Teo, P K Toward resolving inadequacies in object-oriented data models 267
Lott, C M and Rombach, H D Measurement-based guidance of software projects using explicit project plans 407
Lu, J-F see Chen, J-Y
Luppino, F see Dyer, M

MacDonell, S G Deriving relevant functional measures for automated development projects 499
McFadden, F see Erikkson, I
McParland, P see Thompson, K
Maeng, S R see Kim, B M
Maiocchi, M see Bazzana, G
Mariani, J A Realizing relational style operators and views in the Oggetto object-oriented database system 207
Mariani, J A see Davies, N
Meyerhoff, D see Müllerburg, M
Mii, N and Takeshita, T Software re-engineering and reuse from a Japanese point of view 45

Index

Minkowitz, C Formal process modelling 659
Moily, J P see Sakthivel, S
Moynihan, Tony Modelling the software process in terms of the system representations and transformation steps used 181
Müllerburg, M Technology transfer in software engineering measurement: ESPRIT II Project METKIT (Editorial) 107
Müllerburg, M and Meyerhoff, D The METKIT CAI System 120
Murphy, J and Grimson, J Formal specification of a persistent object management system 277

Neelamkavil, F and O'Shea, S Using PCTE with X-based user interface development tools 17
Nof, S Y see Wiegner, R T
Norris, M see Pengelly, A

O'Donoghue, P G see Hull, M E C
O'Shea, S see Neelamkavil, F
Österle, H see Heym, M

Paton, N W, Leishman, S, Embury, S M and Gray, P M D On using Prolog to implement object-oriented databases 301
Paulk, M see Curtis, B
Phalp, K Software process modelling in practice (Conference report) 317
Pengelly, A, Norris, M and Higham, R Software process modelling and measurement: a QMS case study 375

Quinn, J M P see Abdelmoty, A I 587

Redman, T C see Levitin, A V
Roberts, S A and Gahegan, M N An object-oriented geographic information system shell 561
Robson, A P and Henderson W D Data flow model for the implementation of real-time programs on simple target machines 3
Rombach, H D see Lott, C M
Rubinovitz, H and Thuraisingham, B Simulation of join query processing algorithms for a trusted distributed database management system 287
Russell, M and Bush, M The METKIT Academic Package 115
Ryu, K Y see Kim, B M

Saiedian, H and Awad, M Managing synchronization and time factors in multimedia presentation 653
Saiedian, H see Zand, M K
Sakthivel, S and Moily, J P Analytical verification of information system requirements using Petri net properties 89
Saleh, K, Ahmad, I, Al-Saqabi, K and Agarwal, A Dynamic checkpointing procedure for the design of stabilizing protocols 479
Samadzadeh, M H see Zand, K M
Sarda, N L Time-rollback using logs in historical databases 171
Siltanen, A Case technology adaptation and managerial maturity 312
Sjøberg, D Quantifying schema evolution 35
Swede, V van and Van Vliet, J C A flexible framework for contingent information systems modelling 530

Takeshita, T see Mii, N
Tamai, T Current practices in software processes for system planning and requirement analysis 339
Tate, G Software process modelling and metrics: a CASE study 323
Teo, P K see Ling, T W
Thompson, K and McParland P Software process maturity (SPM) and the information systems developer 331
Thuraisingham, B see Rubinovitz, H
Ting, T C see Demurjian, S A
Tsai, W T see Chen, S

Van Vliet, J C see Swede, V van

Waldron, R see Dyer, M
Welzel, Dieter A rule-based process representation technique for software process evaluation 603
Wiegner, R T and Nof, S Y The software product feedback flow model for development planning 427
Williams, M H see Abdelmoty, A I
Williams, M H see Hu, J
Woodward, M R Mutation testing—its origin and evolution 163

Yuan, S-M see Leu, W-Y

Zand, M K, Samadzadeh, M H and Saiedian, H Version management for ROPCO—a micro-incremental reuse environment 627
Zontini, G see Bazzana, G

BOOKS AND PUBLICATIONS

Baker, R and Longman, C CASE* method: Function and process modelling 703
Bell, D and Grimson, J Distributed database systems 704
Bell, D, Morrey, I and Pugh, J Software engineering: a programming approach 254
Bowers, D S From data to database 700

Coffin, M H Parallel programming: a new approach 702

de Champeaux, D, Lea, D and Faure, P Object-oriented system development 702

Edmond, D Information modelling: specification and implementation 698
Ege, R, Singh, M and Meyer, B (eds) TOOLS 8: Technology of object-oriented languages and systems. Proceedings of the 8th International Conference, Santa Barbara, 1992 612
Embly, D W, Kurtz, B D and Woodfield, S N Object-oriented systems analysis: a model-driven approach 189

Grady, R Practical software metrics for project management and process improvement 701

Harmon, P and Taylor, D A Objects in action: commercial applications of object-oriented technologies 704
Harrison, R Abstract data types in standard ML 705
Heeg, G, Magnusson, B and Meyer, B (eds) TOOLS 7: Technology of object-oriented languages and systems 127

Jordan, L and Churchill, B Communications and networking for the IBM PC and compatibles 699

Martin, J and Odell, J J Object-oriented analysis and design 420

Norris, M and Rigby, P Software engineering explained 254
Nussbaum, M Building a deductive database 698

Perrott, R H (ed) Software for parallel computing 189

Schildt, H The Art of C 422
Schmitt, G N (ed) CAAD Futures 91: Education, Research, Application 700
Serbanati, L D Integrating tools for software development 697

Yeh, H T Software process quality 549